REMARKS

Applicant intends this response to be a complete response to the Examiner's **12 July 2011** Non-Final Office Action. Applicant has labeled the paragraphs in his response to correspond to the paragraph labeling in the Office Action for the convenience of the Examiner.

DETAILED ACTION

Formalities

The Examiner states and/or contends as follows:

> Claims 1, 11-12 and 31-48 are pending. Applicants' amendment, dated June 3, 2011, has been entered.
>
> Applicant's election with traverse of Group I in the reply filed on June 3,2011, is acknowledged. The traversal is on the ground(s) that all four groups identified in the May 3, 2011 ElectionlRestriction Requirement require common elements, *viz.*, a core and a nano-structure. This is not found persuasive because the combination of a core and a nano-structure still does not make a contribution over the prior art when each invention is considered as a whole. For instance, Carpenter et al. (U.S. Patent No. 7,235,228) discloses nanoparticles having core/shell architecture. See Abstract.
>
> The requirement is still deemed proper and is therefore made FINAL.
>
> Claims 11-12 and 40-48 are withdrawn from further consideration pursuant to 37 CFR 1. 142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 3, 2011.
>
> Accordingly, claims 1 and 31-39 are examined on the merits to which the following grounds of rejection are applicable.

While Applicants still disagree with the restriction requirement, Applicants acknowledge the finality and will proceed to address the Examiner objections and rejections.

Specification/Drawings Objections

The Examiner states and/or contends as follows:

> The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 4A-4D, 13C-13D, 15C-15D, andl6C. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all ofthe figures appearing on the immediate prior version ofthe sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
>
> The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Figures 55C and 57C (page 18 of the present specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The figures numbering is all correct, the problems all appeared only in the specification and all of the corrections were made as set forth above. Applicants, therefore, respectfully request withdrawal of the objections to the Specification and Drawings.

Claim Objections

Claim 33 stands objected to because of the following informalities:

The Examiner states and/or contends as follows:

> an "a" should be inserted before "third metal" in the third line ofthe claim. Appropriate correction is required.

Applicants thank the Examiner and have made appropriate amendments. Applicants, therefore, respectfully request withdrawal of the claim objection.

Claim Rejections - 35 USC § 112

Claims 1,34, and 36 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states and/or contends as follows:

> Claim 1 recites the limitation "a nano-structure formed an outer surface of the core." Use ofthe term "an" is grammatically incorrect and renders the limitation incomprehensible. Accordingly, the scope of the claim cannot be understood. For purposes of examination, the limitation is interpreted as "a nano-structure formed on an outer surface of the core."

Applicants thank the Examiner and have made appropriate amendments. Applicants, therefore, respectfully request withdrawal of the claim rejection.

The Examiner states and/or contends as follows:

> Claim 34 recites the limitation "wherein the. " third metals or metal alloys" in first and second lines of the claim. There is insufficient antecedent basis for this limitation in the claim.

Applicants thank the Examiner and have made appropriate amendments. Applicants, therefore, respectfully request withdrawal of the claim rejection.

The Examiner states and/or contends as follows:

> Claims 36 and 37 recite the limitation "wherein the first metal and first metal alloy are selected ... " in first and second lines of the claim. There is insufficient antecedent basis for this

limitation in the claims.

Applicants thank the Examiner and have made appropriate amendments. Applicants, therefore, respectfully request withdrawal of the claim rejection.

Claim Rejections - 35 USC § 102

Claims 1 and 31-39 stand rejected under 35 U.S.C. 102(a) and (e) as being anticipated by West et al. (WO 01105586).

The Examiner states and/or contends as follows:

> Applicants claim a composition comprising a nano-particle core and a nanostructure formed on the outer surface of the core. Both the core and the nano-structure are comprised of conductive materials which may be the same or different. Applicants further identify the nano-structure as consisting either of a nano-shell, a plurality of nanorods, or a nano-shall having a plurality ofnano-rods disposed on a surface of the nanoshell. The nano-rods comprise a third conductive material which may be the same or different than the first and second conductive materials. Additional limitations also identify the particular composition of the conductive materials as either metals, metal alloys or conductive polymers and name particular types of metals and metal alloys, *i.e.*, noble, transition and non-transition.
>
> West teaches the use of gold nanoshells in photothermally modulated drug delivery systems. Page 7 lines, 17-25. According to West, "[g]old nanoshells are a preferred class of optically active nanoparticles that consist of a thin layer of gold surrounding a dielectric core, such as gold sulfide." !d. West further teaches that "[b]y also varying the core and shell materials, which are preferably gold or silver over a silicon dioxide or Au_2S core, the tunable range can be extended to cover most of the UV to near-infrared spectrum." Page 8, lines 4-6. Gold and silver are known transition metals.
>
> In view of the above, West teaches all the limitation of claims 1 and 31-39, and thereby anticipates them.

Applicants respectfully point out to the Examiner that West is a traditional nanoshell composition, where a metallic layer is formed on a dielectric core. As with all know nano-shell compositions, an outer conductive layer is deposited on a dielectric core. In fact, the quote from West used by the Examiner, clearly states: "[g]old nanoshells are a preferred class of optically active nanoparticles that consist of a thin layer of gold ***surrounding a dielectric core***, such as gold sulfide." West at page 8, lines 4-6.

The elected claims of this invention do not includes dielectric cores, but conductive cores. The conductive cores of this invention are either a conductive metal, a conductive metal alloy or a conductive polymer.

Because West does not disclose compositions including a nanostructure deposited on a conductive core, where the nanostructure is also a conductive, West cannot anticipate claims 1 and 31-39.

Moreover, nothing in West disclosed, taught, suggested or would even lead an ordinary

artisan to attempt to construct a composition including a conductive core instead of a dielectric core, and, therefore, West cannot render claims 1 and 31-39 obvious.

If it would be of assistance in resolving any issues in this application, the Examiner is kindly invited to contact applicant's attorney Robert W. Strozier at 713.977.7000

The Commissioner is authorized to charge or credit Deposit Account 501518 for any additional fees or overpayments.

Respectfully submitted,

Date: **12 October 2011**

/Robert W. Strozier/
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